

REMARKS

The Applicant sincerely appreciates the thorough examination of the present application as evidenced by the Office Action of July 15, 2005. In particular, the Applicants appreciate the Examiner's indication that Claims 15 and 16 would be allowable if rewritten in independent form. The Applicant has amended Claim 1 to include all recitations of Claim 2; canceled Claims 2 and 3; rewritten Claims 15 and 16 in independent form; rewritten Claim 22 to include all recitations of Claim 23; canceled Claims 23 and 24; and added new Claims 31 and 32. The Applicant has also amended the claims to address the claim objections noted in the Office Action. In addition, Claims 1, 8, and 22 have been amended to clarify that a logic high voltage level of the buffered output signal is less than a logic high voltage level of the input signal.

In the following remarks, the Applicants will show that all claims are patentable over the cited art. A Notice of Allowance is thus respectfully requested in due course. Moreover, the Applicants note that claims have been canceled and amended to advance prosecution of the present application without prejudice to the Applicants' right to pursue canceled and/or unamended claims in a continuing application.

All Claim Objections Have Been Overcome

The Office Action has objected to Claim 2 stating that the recitation "less than a logic high" should be changed to "less than the logic high...." The Office Action further states that in Claims 2-21 and 23-30, the recitation "An input" should be changed to "The input...." As stated above, Claims 2 and 23 have been canceled, and Claims 1 and 22 have been amended to include the recitations of Claims 2 and 23. Accordingly, the Applicant has amended Claims 1, 3-22, and 24-30 to comply with all objections in the Office Action without narrowing the scope of these claims, as the amendments overcoming the noted objections were not made for reasons related to patentability. Accordingly, all objections to the claims have been overcome.

Independent Claims 1 and 22 Are Patentable Over The Cited Art

Independent Claim 1 has been amended to include all recitations of dependent Claim 2, independent Claim 22 has been amended to include all recitations of Claim 23. In addition, Claims 1 and 22 have been amended to recite that a logic high voltage level of the buffered output signal is less than a logic high voltage level of the input signal. As originally filed, Claims 1, 2, 22, and 23 were rejected under 35 U.S.C. Sec. 103(a) as being unpatentable over U.S. Patent No. 6,198,340 to Ting *et al.* (hereinafter "Ting") in view of applicant's admitted prior art in Figure 9 (hereinafter "Figure 9"). The Applicants respectfully submit, however, that independent Claims 1 and 22 patentable over the cited art.

As amended to include all recitations of Claim 2, for example, Claim 1 recites an input circuit for an integrated circuit device, the input circuit comprising:

- a boosting circuit configured to receive a supply voltage of the integrated circuit device and to generate a boosted voltage higher than the supply voltage;

- a protection circuit configured to receive an input signal and the boosted voltage and to generate an output signal that changes responsive to changes in the input signal wherein the protection circuit is configured to generate a logic high voltage level output responsive to a logic high voltage level of the input signal, wherein the protection circuit is configured to generate a logic low voltage level output responsive to a logic low voltage level of the input signal, and wherein the logic high voltage level output of the protection circuit is less than the logic high voltage level of the input signal; and

- a buffer circuit configured to generate a buffered output signal responsive to the output signal generated by the protection circuit wherein a logic high voltage level of the buffered output signal is less than a logic high voltage level of the input signal.

The Applicant respectfully submits that it would not be obvious to somehow combine aspects of Ting and Figure 9 to teach or suggest the recitations of Claim 1. As discussed in the Manual Of Patent Examining Procedure (MPEP), three basic criteria must be met to establish a *prima facie* case of obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Moreover, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior

art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). MPEP, Sec. 2143.

The Office Action takes the position that Ting teaches "a protection circuit (23) configured to receive an input signal (an input from node 11) and the boosted voltage (from 14 via 15) and to generate an output signal (13) that changes responsive to changes (from logic 0 to logic 1 or vice versa) in the input signal...." The Office Action further states that "the applicant's admitted prior art in Fig. 9 further teaches the input circuit according to Claim 1 wherein the protection circuit (ANM1) is configured to generate a logic high voltage level output ... responsive to a logic high voltage level ... of the input signal, wherein the protection circuit is configured to generate a logic low voltage level output ... responsive to a logic low voltage level ... of the input signal, and wherein the logic high voltage level output of the protection circuit is less than the logic high voltage level of the input signal...." The Applicant respectfully submits, however, that it would not be obvious to combine Ting and Figure 9 as suggested by the Office Action.

First, the pump circuit of Ting and the input circuit of Figure 9 are used for different purposes, and elements thereof are not interchangeable. As discussed in Ting:

Pump circuits have become an important function in semiconductor memories for providing internal voltages higher than the voltage applied to the memory chip. ... One of the more critical applications of a pump circuit is to provide a bias voltage for word line drive circuits. (Underline added.)

Ting, col. 1, lines 10-19. In Figure 1b of Ting, the boosted voltage is provided as Vout at node 13. See, Ting, col. 3, lines 13-34. Figure 9 illustrates an input circuit for:

an integrated circuit device using a power supply less than 5 volts and capable of tolerating an input signal higher than 5 volts ... so that the integrated circuit device may interface with a semiconductor device having a 5 volt power voltage.

Application, page 1. Accordingly, there is no motivation to combine Ting and Figure 9 to somehow teach or suggest the input circuit of Claim 1.

Moreover, both Ting and Figure 9 teach away from the combination suggested by the Office Action. In particular, Ting discusses providing a "boosted voltage to Vout 13" (see, Ting, col. 3, lines 23-28), while Figure 9 is a circuit used to convert an input having a relative high

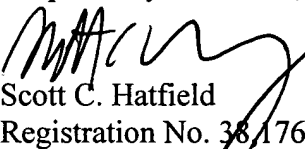
input voltage at node N1 into an output having a relatively low voltage at node N4 and/or N6. Stated in other words, the boosted voltage at Vout 13 of Ting is intended to be higher than a power voltage Vcc of the device to provide a bias voltage for word line driver circuits, while the output at node N4 and/or N6 of Figure 9 is intended to be equal to or less than the power voltage VDD. Accordingly, there is no reasonable expectation that the combination of Ting and Figure 9 as suggested in the Office Action would succeed.

For at least the reasons discussed above, the Applicant respectfully submits that Claim 1 is patentable over the cited art. Claim 22 is also patentable for reasons similar to those discussed above with regard to Claim 1. Moreover, Dependent Claims 4-14, 17-21, and 25-32 are patentable at least as per the patentability of Claims 1 and 22 from which they depend.

CONCLUSION

Accordingly, the Applicants submit that all pending claims in the present application are in condition for allowance, and a Notice of Allowance is respectfully requested in due course. The Examiner is encouraged to contact the undersigned attorney by telephone should any additional issues need to be addressed.

Respectfully submitted,


Scott C. Hatfield
Registration No. 38,176

Customer Number 20792

Myers Bigel Sibley & Sajovec, P.A.

P.O. Box 37428

Raleigh, NC 27627

919-854-1400

919-854-1401 (Fax)

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